

ELECTRICALLY CONDUCTIVE POROUS COMPOSITE

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Abstract

PURPOSE: To obtain the titled composite uniform in electrical conductivity in the direction of thickness, thus improved in mass productivity, useful for pressure sensors, dust collecting filters, etc., by making a porous crosslinked polymer form and polypyrrole into a composite.

CONSTITUTION: An oxidizing agent (e.g., potassium ferricyanide) is carried on a porous crosslinked polymer form (e.g., urethane sponge) followed by impregnation with a petroleum ether solution of pyrrole to perform chemically oxidizing polymerization to form polypyrrole, thus obtaining the objective composite. Alternatively, the porous crosslinked polymer form is brought into firm contact with the anode followed by contact with an electrolytic solution made up of pyrrole, supporting electrolyte (e.g., sodium sulfate) and solvent such as water to perform electrolytic polymerization to form polypyrrole, thus obtaining the objective composite. The former process will give fine particulate polypyrrole, whereas the latter one, continuous finely dendritic polypyrrole.

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